Draft Feasibility Study Dredging Water Quality Evaluation Memorandum

General Comments:

1. This memorandum needs to cite both the Final GASCO Early Removal Action Construction Oversight Report and the Final Terminal 4 Early Removal Action Construction Oversight Report and discuss information learned (e.g., adequacy of model predictions of resuspension, adequacy of BMPs, etc.) from those actions as cited in the reports.

Specific Comments:

1. Page 1, Introduction, pp 1. It should be noted that a more detailed evaluation for the need of physical controls for each dredge project will be conducted during area-specific remedial design.
2. Page 2, Typical Water Quality Controls, pp 2, 3rd sentence. Little discussion was provided on the various physical and operational controls that can be used with dredging. The LWG needs to provide a list of references of previous dredging projects and provide more details on the benefits and challenges associated with physical dredge controls. This memorandum would be a more effective tool if a pro/con analysis on the effectiveness of using physical and operational controls during dredging was included. Further, it is likely that the pros and cons of physical controls associated with hydraulic dredging are the same as for mechanical dredging. These also should be presented.
3. Page 2, Typical Water Quality Controls, 3rd bullet. It is likely that normal daily operation would already be impeded by dredging activities and is unclear what additional impediments from physical controls would cause. The LWG should provide additional rational and clarification for this statement.
4. Page 3, Dredge Model. While 2-D vertically-integrated models, rather than 3-D models, are probably the best choice for the FS given the cost and data needs of the alternatives, transport models are inherently difficult and the results are subject to wide variability and interpretation. Depth averaging is of particular concern because in large river systems like the Willamette River, flow velocities vary significantly at different depths and with seasonally changing temperature and salinity. Dredging with a clamshell bucket is likely to have the majority of sediment loss at the riverbed and lessening amounts of loss up through the water column with each journey of the bucket. Accounting for where the greatest amount of loss occurs and how various flow velocities and tidal influence affect loss, it is important in determining how much sediment will be transported and where.
5. Page 3, Dredge Model. The dredge model can also be used to evaluate impacts from hydraulic dredging, but was not conducted for this report. This needs to be done in the draft FS to complete the evaluation for hydraulic dredging.
6. Page 4, Footnote 1. This footnote states that the LWG's expectation is that mechanical dredging will be used much more than hydraulic dredging. The LWG did not provide the basis for this assumption. Until each of the remedial technologies is evaluated for each SMA, the LWG should refrain from pre-selecting remedial technologies.

7. Page 6, Water Quality Predictions. It is unclear how the contaminants were selected from the *Identification of "COCs" and Contaminant Mobility Evaluation Criteria for the Draft Feasibility Study*. It seems that the contaminants evaluated for water quality predictions should be the combined list of Tables 1, 2 and 3, since all of these tables present exceedances in water media at the site. Further, there may be sediment COCs associated with TSS that also may be problematic in the water column during dredging that should be evaluated.
8. Table 1. This table does not provide the sediment concentrations used to determine exceedances of acute AWQCs. It is unclear whether average or maximum sediment concentrations were used in the evaluation. Further, the magnitude of the predicted exceedances is not provided. The LWG should provide more information regarding how this model determines exceedances of acute AWQCs in an appendix to the draft FS and provide all inputs to the model, including sediment contaminant concentrations with appropriately cited statistic for value.